

Municipal Water Quality Investigations Limnology Program

Solving Contractor Issues Through Applied Science



MWQI Program Goal:

Optimize the use of
California's water
resource with regard to
drinking water quality.



MWQI Program Objective:

- Early warning of changing conditions in the source waters
- Provide Delta and SWP water quality monitoring, forecasting and reporting
- Support operational decision-making
- Support longer-term planning

Three Pronged Approach:

1. Monitoring
2. Modeling/Forecasting
3. Scientific Investigations

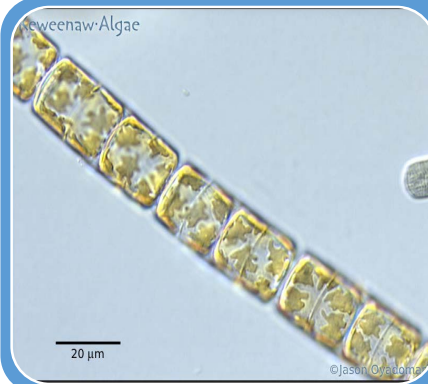


Contractor Issues



Earthy Musty T&O

- Everywhere



Filter Clogging Algae

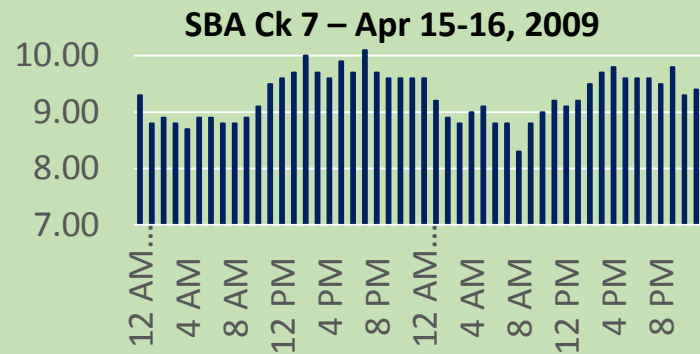
- SBA, Southern Reservoirs, Contractor Facilities



Facility Obstruction by Aquatic Plants

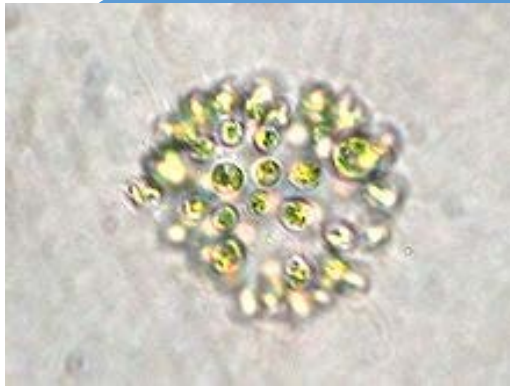
- Banks, Coastal Branch, Central Valley, East Branch, Contractor Facilities

Contractor Issues cont.



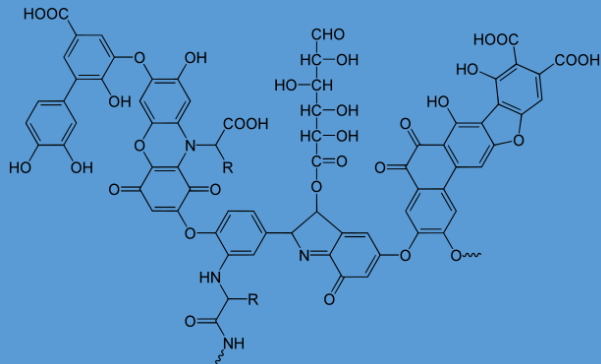
pH Swings

- SBA, Contractor Facilities



Cyanotoxins

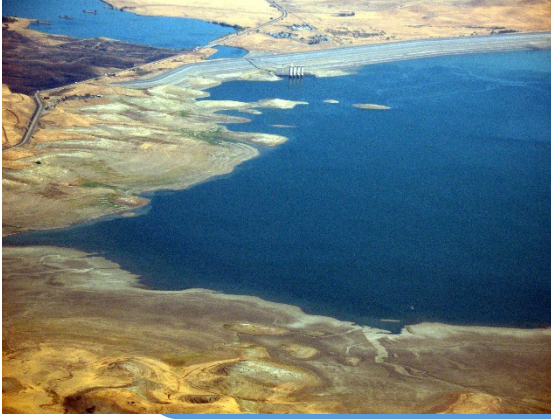
- Everywhere, benthic and planktonic sources



DBP Precursors

- Everywhere

Contractor Issues cont.



Drought Caused WQ Uncertainty



Sacramento Regional Wastewater Treatment Plant Impact on SWP Nutrients



Reservoir and Mercury Issues

Earthy-Musty T&O

Contributing Factors

- Occurrence of T&O producing cyanobacteria
- Nutrients
- Favorable light conditions

Support Studies

- Spatial distribution of T&O producers
- Growth factors: nutrients and light
- Treatment optimization
 - Algaecide
 - Light reduction
 - Nutrient reduction
 - Canal scraping

Filter Clogging Algae

Contributing Factors

- Occurrence of filter clogging algae (*Melosira* spp)
- Nutrients
- Favorable light conditions

Support Studies

- Spatial distribution of *Melosira* and *Melosira* like diatoms
- Growth factors: nutrient and light limitation
- Treatment optimization
 - Algaecide
 - Light reduction
 - Nutrient reduction
 - Canal scraping

Facilities Obstruction

Contributing Factors

- Excess macrophyte growth
- Nutrients
- Favorable light conditions

Support Studies

- Spatial distribution of submersed macrophytes
- Growth factors: nutrient and light limitation
- Sediment nutrients
- Treatment optimization
 - Herbicide
 - Light reduction
 - Nutrient reduction
 - Canal scraping

Wide pH Excursions

Contributing Factors

- Excess plant (algal and macrophyte) growth
- Nutrients
- Favorable light conditions

Support Studies

- Spatial distribution of benthic algae and submersed macrophytes
- Growth factors: nutrient and light limitation
- Treatment optimization
 - Algaecide
 - Light reduction
 - Nutrient reduction
 - Canal scraping

Cyanotoxins

Contributing Factors

- Occurrence of toxin producing cyanobacteria
- Nutrients
- Favorable light conditions

Support Studies

- Distribution of cyanotoxin producers
- Growth factors: nutrients and light
- Treatment optimization
 - Algaecide
 - Light reduction
 - Nutrient reduction

DBP Precursors

Contributing Factors

- Allochthonous reactive organic carbon
- Autochthonous reactive organic carbon
- Bromide

Support Studies

- Nutrients
- Plant (algal and macrophyte) growth and decomposition

Drought, SRCWTP Effects

Contributing Factors

- Nutrients
- Water chemistry
- Influence on ecology of species of concern

Support Studies

- Plant (algal and macrophyte) growth factors
 - Nutrients
 - Salinity

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